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THE BRYOLOGIST

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FURTHER BRYOPHYTES FROM NORTH CAROLINA (AND TENNESSEE)

A. LEROY ANDREWS

In the summer of 1919 I found it possible to spend about seven weeks in rather intensive search for bryophytes in the southern mountains. The field covered was as follows: one day in the low mountains (up to slightly over 3000 feet) east of Asheville in Buncombe County; two weeks from headquarters at Swannanoa in Buncombe County, from which place the northern face of the Swannanoa Mts. (up to 4400 feet) was carefully investigated and trips were made in the valley of the Swannanoa River and those of its tributaries from the north, Beetree Creek and North Fork; two weeks at Balsam in Jackson County, from which Jones Knob (6400 feet) was ascended several times and especial attention devoted to the route following Woodfin Creek and Falls, also the Balsam Range was followed from the summit of Wesner Bald to that of Dark Ridge (up to 5865 feet), the valley of Dark Ridge Creek was traversed a number of times and south of it Double Top Mt. (5540feet) was climbed and Snaggy Mt. partially examined; a week at Roan Mountain Inn in Carter County, Tennessee, from which Roan Mt. (6313 feet) on the border between North Carolina and Tennessee was twice ascended, the White Rock Mt. (4500 feet) to the northward was visited and Pardee Point and its vicinity in the canyon of the Doe River were scrutinized; ten days at Linville in Avery County, N. C., from where attention was devoted largely to Grandfather Mt. (5964 feet) and its immediate environs, including a trip down the Blue Ridge from Grandmother Gap (4000 feet) to Gragg or Cary Flat (about 2500 feet); finally part of a day at Marion (about 1500 feet) in McDowell County, where a piece of woods a short distance to the westward was botanized. The rocks were Carolina gneiss, Roan gneiss, Cranberry granite, Beech granite and Unicoi conglomerate, all in the main acid or silicious rocks; no limestone was visited.

The list of species I give will include only such as are not already contained in the lists of those collected by Atkinson and Durand,[1] though I shall precede it by a few remarks upon some of the species included there. My purpose was primarily to look for southern extension of the range of northern species and I am

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[1] THE BRYOLOGIST, XVII, 58 ff. 1914; XXI, 61 ff. 1918.

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convinced by my experience that there probably remain still further interesting finds of this sort to be made. Grandfather Mt. and Roan Mt. are the most favorable localities for these species. Roan Mt. Inn is too far distant for a convenient base, and I owe it to the kindly hospitality of members of the Wilder family, owners of a large part of the mountain, who were spending the summer near the summit, that I was able to do any justice at all to this mountain's remarkable flora.

Of the species noted before it may be remarked that *Metzgeria crassipilis* (Lindb.) Evans is in all the region traversed the common species of its genus, as was rather suspected from the previous material. It grows on rocks and on bark of trees, often developes a great mass of the gemmae described and figured by Evans,[2] by which as well as by the breadth and outline of the thallus it can easily be distinguished at sight from *M. conjugata* Lindb., which is hardly so common in that region, though I saw it a few times and even colleected it fruiting on a large rock in the valley of Woodfin Creek.

The *Herberta adunca* (Dicks.) Gray of my former list has since been included by Evans[3] in his species, *H. tenuis*. I tried in vain to find fertile specimens of the plant. The conditions under which it grows were carefully noted. I found it only on mountains whose altitude reached the spruce and balsam zone, that is generally speaking on mountains of over 6000 feet. On shaded perpendicular rocks in the upper regions of such mountains it grew abundantly. Grandfather does not quite reach 6000 feet, but its great development of cliffs makes up for its lower altitude. In the Roan Mountain and the Balsam Range spruce and balsam were lacking on the summits falling short of 6000 feet and on such I saw no *Herberta*, though it occurred on the higher summit region of both Roan Mt. and Jones Knob. On Grandfather Mt. there was great abundance of it. On Roan Mt. I took a specimen from the Tennessee side, which adds a state to its distribution, but it was better developed on the North Carolina side.

The *Porella platyphylla* (L.) Lindb. of my former list is in the light of Evans' subsequent study[4] apparently all referable to *M. platyphylloidea* (Schwein.) Lindb., which seems to be our common form. It grows fairly abundantly on the bark of trees in our southern mountains.

Lejeunea Ruthii (Evans) was first described[5] from Tennessee alone, but in 1912 its author reported a station from North Carolina.[6] I subsequently recorded it from Atkinson's collections in that state on the basis of scattered plants growing among other bryophytes on the bark of trees. I found it myself in something more nearly approaching a pure culture on the slope of the Blue Ridge below Grandmother Gap, where the *Lejeuneae* were unusually richly represented.

Of further hepatics which in Atkinson's material represented extensions of range southward as compared with the ranges given in Evans and Nichols' Bryophytes of Connecticut (1908) and which have not otherwise, so far as I know, been found so far south in our eastern states the following were collected again by myself: *Lophozia incisa* (Schrad.) Dum., *Sphenolobus Michauxii* (Web. f.) Steph., *Lophocolea bidentata* (L.) Dum., *Lepidozia reptans* (L.) Dum., *Blepharostoma trichophyllum* (L.) Dum., *Frullania Brittoniae* Evans. To these might perhaps be added three or four mosses whose southern range is given somewhat vaguely by Evans and Nichols as "northern United States."

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[2] Annals of Botany, XXIV, 282 ff. 1910; cf. also Rhodora, XI, 188 f. 1909.

[3] Torrey Bull., XLIV, 219. 1917.

[4] Rhodora, XVIII, 109 ff. 1916.

[5] Evans, Lejeuneae of United States and Canada, 161. 1902.

[6] THE BRYOLOGIST, XV, 62.

The species not recorded in the collection of Atkinson and Durand follow, accompanied by various notes and observations upon them. The localities given are in North Carolina except as Tenn. is expressly added. This is especially to be noted in the case of Roan Mt., where collecting was done on both sides of the state line. I have discussed various specimens with Prof. Evans, Mrs. Britton and Mr. Williams, to all of whom I am much indebted.

Riccardia latifrons Lindb. Rotten log near Woodfin Falls. The southern limits given by Evans and Nichols are New England and New York. It is certainly not as common in the southern mountains as *R. palmata* (Hedw.) Carruth., which I collected in several localities and which is in fact known from as far south as Florida.[7]

Riccardia pinguis (L.) Gray. Very wet rocks, Pardee Point, Tenn.

Pallavicinia Lyellii (Hook.) Gray. About a spring, near Cary Flat.

Pellia epiphylla (L.) Corda. Wet rocks, Pardee Point, Tenn. This is further south than the range given by Evans and Nichols, but it has since been reported from West Virginia and North Carolina and Prof. Evans informs me he now has it from Georgia.

Marsupella Sullivantii (De Not.) Evans. Shaded moist sloping rocks, near headwaters of Woodfin Creek in Jones Knob.

Nardia crenuliformis (Aust.) Lindb. On stones in small brook, Swannanoa Mts. Hitherto unknown south of West Virginia, where I collected it some years ago.

Nardia crenulata (Sm.) Lindb. On exposed ground at medium altitudes, collected near Cary Flat in Blue Ridge; also near Beetree Creek and near Burbank at foot of Roan Mt., Tenn. Specimens collected from rocks, not in brookbeds, near the summit of Wesner Bald and on Blue Ridge toward Cary Flat, the latter with perianths, I am unable to refer satisfactorily to either *N. crenulata* or *N. crenuliformis* and I recommend the group for further collection and study in our southern mountains.

Jungermannia pumila With. Wet rocks, valley of Dark Ridge Creek; also on stones in small brook, Swannanoa Mts. The southern range given by Evans and Nichols is to Maryland, but Sheldon has since recorded it from West Virginia.[8]

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[7] THE BRYOLOGIST, XVI, 50. 1913.

[8] THE BRYOLOGIST, XIII, 65. 1910.

Lophozia bicrenata (Schmid.) Dum. Ground in exposed places, Roan Mt., Tenn.; Blue Ridge, by road below Grandmother Gap. Evans and Nichols have it only south to Pennsylvania and New Jersey.

Lophozia ventricosa (Dicks.) Dum. Scanty specimens in crevices of rock about summit region of Grandfather Mt. The southern limit of the species given by Evans and Nichols was New England, but Sheldon later reported a West Virginia locality.

Sphenolobus minutus (Crantz) Steph. Rocks at high altitudes, Jones Knob; along Yonahlossee Road on side of Grandfather Mt.; also elsewhere at higher altitudes on Grandfather Mt. An extension of range to the southward, though Sheldon has reported it from West Virginia.

Plagiochila ludoviciana Sull. Doubtfully referred to this species by Evans. Rocks in canyon of lower course of Dark Ridge Creek; rocks in bed of stream on side of Grandfather Mt., by Yonahlossee Road.

Mylia Taylori (Hook.) Gray. Vertical cliffs, summit region of Grandfather Mt. This is a remarkable extension of range of this species; so far as I am aware it is not otherwise known south of the higher mountains of Vermont and New Hampshire.

Lophocolea heterophylla (Schrad.) Dum. On ground, Roan Mt., Tenn.; Grandmother Mt. By no means as common as farther north.

Chiloscyphus polyanthos (L.) Corda. In cold spring on Roan Mt., Tenn.; also at Woodfin Falls. The southern limit given by Evans and Nichols was New Jersey, but Sheldon later reported it from West Virginia. I have used the name *C. polyanthos* in the broad sense, as I have not been able to convince myself of the specific value of the segregated forms. So far as these are concerned Prof. Evans informs me that my first mentioned specimen is referable to *C. fragilis* (Roth) Schiffn., the second to *C. pallescens* (Ehrh.) Dum.

Harpanthus scutatus (Web. & Mohr) Spruce. On decayed stumps and logs, Woodfin Falls; Linville. The southern limit given by Evans and Nichols is Virginia.

Cephalozia bicuspidata (L.) Dum. Rotten wood, by Yonahlossee Road on side of Grandfather Mt. It is in the southern mountains much less common than the several other species of the genus. Evans and Nichols give its southern limit as New England, but Prof. Evans now informs me he has it from Georgia.

Cephaloziella papillosa (Douin) Schiffn. Ground in woods or in crevices of rock, Swannanoa Mts. and Balsam. The specimen from the first locality was named by Evans, that from the second is apparently the same.

Diplophyllum Sp. Exposed ground at medium altitudes, near Beetree Creek and near Burbank at foot of Roan Mt., Tenn. This is a distinct and apparently undescribed species.[9]

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[9] It is now under investigation and will be reported on later.

Radula Lescurii Aust. So named by Evans. On wet rocks at Woodfin Falls. This is a fine large species, quite different from our northern ones, its affinities being tropical American according to Prof. Evans.

Porella pinnata L. Wet rocks, Pardee Point, Tenn.

Lejeunea ovata Hook. Bark of trees, near Grandmother Gap and along road from there down Blue Ridge; also mixed with *Radula tenax* from rock, Dark Ridge Creek.

Lejeunea unciloba Lindenb. Bark of tree in woods, near Marion. Not found at higher altitudes, where *L. clypeata* (Schwein.) Sull. was not uncommon.

Lejeunea patens Lindb. Rocks, Grandfather Mt.; Woodfin Falls; Dark Ridge Creek. So named by Evans. This species had not hitherto been reported south of Nova Scotia[10] and is one of the "Atlantic species" reaching northwestern Europe. I have collected it in Scotland and the Faroes. The North Carolina specimens do not always have the very white color characteristic of those of Europe, but sometimes do, and otherwise agree closely, as Evans notes.

Lejeunea laetevirens Nees & Mont. Rocks, Woodfin Falls region and Swannanoa Mts. This species was left uncertain by Evans when he wrote his *Lejeunea* monograph, but he later cleared it up as having a considerable range in our southern states.[11]

Lejeunea ulicina Tayl. Bark of tree, below Grandmother Gap on Blue Ridge. This minute species Evans had not formerly recorded south of Nova Scotia,[12] as he doubted Lindberg's South Carolina record for it.[13] He now refers my specimen to it and suggests that Lindberg 's record should perhaps be revised. This is like, *L. patens*, an "Atlantic species."

Frullania plana Sull. Not uncommon on bark of trees and on rocks, Roan Mt., Tenn.; Woodfin Creek; Balsam; Swannanoa Mts.

Sphagnum compactum DC. Dripping rocks, canyon of Doe River below Pardee Point, Tenn.

Sphagnum subsecundum Nees. Springy places, summit region of Roan Mt., both N. C. and Tenn.

Sphagnum Girgensohnii Russ. Below cold spring near site of old hotel, summit region of Roan Mt. This is a considerable extension to the southward of the range of this species, the most southerly station in our eastern states being hitherto Cranberry Glades, Pocahontas Co., West Virginia, where it was collected by Sheldon[14] and which was itself a long step to the southward, the species with us not usually passing the southern limits of glaciation. It should be noted however in this connection that it is not entirely a bog plant, as are most of the others limited by the area of glaciation, but occurs also in mountain-woods.

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[10] Evans, Lejeuneae of U. S. and Canada, 150. 1902.

[11] THE BRYOLOGIST, XI, 68. 1908.

[12] Cf. BRYOLOGIST, XII, 39. 1909.

[13] Lejeuneae of United States and Canada, 165. 1902.

[14] THE BRYOLOGIST, XV, 96. 1912.

Trematodon longicollis Michx. On ground, recent railroad cutting between Linville and Linville Gap; also near Beetree Creek.

Ditrichum lineare (Sw.) Lindb. On ground, in considerable quantities about summit region of Roan Mt., Tenn.

Ditrichum pallidum (Schreb.) Hpe. On ground, White Rock Mt., Tenn.

Dicranodontium asperulum (Mitt.) Broth. Vertical rocks at high altitudes, without fruit, Jones Knob; Grandfather Mt.

Dicranum montanum Hedw. A poorly developed sterile specimen from a log, Blue Ridge below Grandmother Gap. Williams[15] gives the southern limit as West Virginia.

Weisia viridula var. *australis* Aust. (= *W. longiseta* L. & J.) On earth, bank of Beetree Creek.

Amphidium Mougeotii (B. & S.) Schimp. Vertical rocks, not seen in fruit, Woodfin Falls; White Rock Mt., Tenn.; Grandfather Mt.

Trichostomum cylindricum (Bruch) C. M. On vertical rocks, usually at high altitudes, persistently without fruit, Jones Knob from summit region down to Woodfin Falls.

Tortella tortuosa (L.) Limpr. Vertical rocks, summit region of Grandfather Mt. Evans & Nichols give its southern range as "northern United States."

Tortella caespitosa (Schwaegr.) Limpr. Ground, not uncommon at lower altitudes, vicinity of Asheville and Beetree Creek.

Tortula caroliniana Andrews.[16] A sterile species with propagula growing on the bark of trees, Swannanoa; also North Fork of Swannanoa River and Grandmother Gap. Two other sterile specimens of *Tortula* are of interest: one from the historic Shelter Rock about a mile and a half south of Roan Mt. Station, Tenn., the other from an exposed rock near Swannanoa. Both were growing with or near *Fabronia* and are probably of southern rather than northern affinities. I am unable to identify either with any described species and they are apparently distinct from each other. The material is however totally inadequate to be branded with dubious new species names, and I recommend further collection and study of southern Tortulas.

Grimmia apocarpa (L.) Hedw. Rock near Balsam; also Roan Mt. Evans and Nichols give its range "from the northern U. S." The specimen from the summit region of Roan Mt. is noteworthy in having large papillae on the leaves, particularly those of the perichaetial region.

Grimmia Doniana Sm. Rock, Roan Mt. A remarkable extension of range, as it was not hitherto known south of the White Mts. of New Hampshire. It was found growing only on a single rock in the summit region near an old trail leading down the North Carolina side. The plants were a little more robust in all parts than those growing in the summit region of ths White Mts., corresponding well with the forma *elongata* of Loeske'e treatment.[17] This form Loeske regards as characteristic of a more moist habitat, and there is no question in my mind that the summit region of Roan Mt. has a much greater summer rainfall than that of the White Mts. Terrific thunderstorms were of almost daily, or nightly, occurence and the summit area was running with water.

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[15] North American Flora, XV, 120. 1913.

[16] For description see BRYOLOGIST, XXIII, 72 ff. 1920.

Rhacomitrium sudeticum (Funck) B. & S. Rocks in brooks, near Yonahlossee Road on side of Grandfather Mt.; Jones Knob including Woodfin Falls; Roan Mt.

Zygodon viridissimus (Dicks.) R. Br. Bark of trees, with propagula, but without fruit, Roan Mt., Tenn.; Swannanoa; Grandmother Gap. A specimen from a large rock near the Yonahlossee Road on the side of Grandfather Mt. was without propagula and produced fruit, but the capsules were either immature or overripe and permitted no examination of the peristome. I cannot refer it satisfactorily to any other species.

Pohlia proligera Lindb. Wet, springy places, Swannanoa Mts.; Dark Ridge. Sterile, but bearing the characteristic propagula. This is apparently the only one of the bulbiferous Pohlias reaching our southern mountains. It has not before been reported south of West Virginia, where I found it some years ago.

Pohlia albicans (Wahl.) Lindb. Wet place in mountains, Beetree Creek. Sterile.

Bryum turbinatum (Hedw.) Schwaegr. Stone in brook (Woodfin Creek), Jones Knob. A large sterile tuft. This species is common in the Rocky Mountain region, but is very uncommon or of doubtful occurrence in our eastern states, and this is a quite unexpected southeastern record.

Mnium hornum L. Bank of small brook crossing Yonahlossee Road. Sterile.

Mnium affine Bland. Collected in woods west of Linville.

Aulacomnium palustre (L.) Schwaegr. Wet, rocky places, Pardee Point, Tenn.; Grandmother Gap. This is by no means so common in the southern mountains as farther north.

Philonotis marchica (Willd.) Brid. Woodfin Falls.

Drummondia clavellata Hook. Bark of tree, near Marion.

Leucodon julaceus (L.) Sull. Bark of tree, near Marion. Not noted at higher altitudes, where *L. brachypus* Brid. everywhere prevailed.

Leskea obscura Hedw. Bark of trees, valley of Swannanoa River and elsewhere about Swannanoa.

Thelia asprella (Schimp.) Sull. Bark of tree, near Marion. The genus was not noted at higher altitudes.

Myurella gracilis (Weinm.) Lindb. A small tuft in crevice of rock, Grandfather Mt.

Anomodon minor (Beauv.) Fürn. Bark of tree, summit region of Roan Mt. Evans and Nichols give the southern limit as Virginia.

Thuidium minutulum (Hedw.) B. & S. Snaggy Mt.

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[17] Die Laubmoose Europas, 1: Grimmiaceae, 93. 1913.

Thuidium virginianum (Brid.) Lindb. On humus in woods, abundant in hills east of Asheville; also noted occasionally, but not collected, in region about Swannanoa; not observed at higher altitudes.

Anacamptodon splachnoides (Fröl.) Brid. Decayed places in beech and maple trees, Roan Mt. below Carver Gap, Tenn.; Yonahlossee Road near Grandfather Mt.; Beetree Creek; Snaggy Mt.

Fabronia octoblepharis (Schleich.) Schwaegr. Noted only on rocks, dry and more or less exposed or shaded, Shelter Rock, 1½ miles south of Roan Mt. Inn in valley of Doe River, Tenn.; White Rock Mt., Tenn.; Swannanoa; Dark Ridge Creek. The plants found were sterile except for a couple of overripe capsules on the specimen from Dark Ridge Creek. They vary considerably as to teeth of leaves, etc. according as they were growing in more shady or sunny situations. Some of them might perhaps be referred to others of the species credited to our southern states, but it seems to me questionable whether the species of this genus have not been decidedly overdone.

Isothecium myosuroides (L.) Schimp. Found at two points on Grandfather Mt.: on large rocks that had rolled down a brook course and lodged by the Yonahlossee Road; also on the so-called White Rocks, the starting point of the trails from the Linville side. This moss was reported by Grout[18] as known in our eastern states only from the White Mts. of New Hampshire, where it is certainly not a common species. My specimens are sterile and the identity of the moss was suspected from acquaintance with it in Norway. I am unable to agree with Grout in including it with *Eurhynchium*.

Pylaisia intricata (Hedw.) B. & S. Bark of trees, Wesner Bald.

Platygyrium repens (Brid.) B. & S. Decaying logs, etc., frequent but sterile, Grandfather Mt.; Woodfin Falls; Roan Mt.

Entodon brevisetus (Hook. & Wils.) J. & S. Not infrequent on logs and bark of trees, Roan Mt., Tenn.; Swannanoa Mts.

Entodon compressus (Hedw.) C. M. On rotten wood, Jones Knob.

Entodon seductrix (Hedw.) C. M. On logs and stumps, Balsam.

Pterigynandrum filiforme (Timm) Hedw. Base of tree near summit ridge of Roan Mt. This is a considerable extension of range southward, the species not having been known before south of New Jersey, so far as I am aware.

Haplohymenium triste (Cesati) Kindb. Not uncommon on bark of trees, sterile, Swannanoa Mts.; North Fork; Beetree Creek; Grandfather Mt.; Marion.

Schwetschkeopsis denticulata (Sull.) Broth. Sterile and mixed with other mosses on bark of trees, Grandfather Mt.; North Fork.

Hookeria Sullivantii C. M. Springy place by lumber railway, valley of Dark Ridge Creek, sterile.

Amblystegium irriguum (Wils.) B. & S. Rocks in brooks, Woodfin Falls; Beetree Creek; Swannanoa Mts.; Grandfather Mt.; Grandmother Mt.

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[18] Torrey Bull., XXV, 251. 1898.

Amblystegium varium (Hedw.) Lindb. Bark of trees, Grandfather Mt.; Blue Ridge near Linville.

Amblystegium adnatum (Hedw.) Aust. Frequent on bark of trees and on rocks, Grandfather Mt.; Grandmother Gap; Wesner Bald; Roan Mt.; Swannanoa Mts.; Pardee Point, Tenn.

Plagiothecium Roeseanum (Hpe.) B. & S. Clefts in rocks, Roan Mt., Tenn.; White Rock Mt., Tenn.; Cabin Creek (tributary of Dark Ridge Creek).

Plagiothecium elegans (Hook.) Sull. On ground and among rocks, Roan Mt., Tenn.; White Rock Mt., Tenn.; Double Top Mt.; Grandfather Mt. In the first and fourth localities the species was fruiting nicely, in the second and third fruit was lacking, but abundant propagula were produced. In the characters of its propagula and capsules this species occupies a somewhat isolated position in the genus. I find I have specimens of it with propagula from Quarry Run in West Virginia, where I gathered it (mixed with hepatics) in the fall of 1903, but failed to include it in my list. I also have it fruited from the White Mts. of New Hampshire.

Plagiothecium Müllerianum Schimp. Crevices in rocks, sterile, Roan Mt., Tenn.; White Rock Mt., Tenn.; also a station midway between both. The specimen from White Rock Mt. was in a somewhat wetter place and more robust than the others. It produced propagula, which have not to my knowledge been observed hitherto for this species. They are small, growing from the stem clustered in the leaf-axils, where they may be detected through the leaves by careful focusing. They are individually slender filiform-clavate, up to 100 μ long, 7 μ wide, septate with up to 6 or 7 segments. They correspond closely with the propagula described by Correns for *P. sylvaticum*,[19] but are slightly more slender. I found them in my specimens in the axils of consecutive leaves some 8–10 mm. below the growing point of the stem (branch), those lower down having apparently already ripened and been detached, while none had yet developed higher up. Normal archegonial buds occurred much farther down the stems, and the species is dioicous. I found no fruit.

Sematophyllum Novae-Caesariae (Aust.) E. G. B. Occasional on wet rocks, brook descending from Grandfather Mt. near crossing of Yonahlossee Road; also near upper course of Woodfin Creek in Jones Knob. The latter specimen bears immature capsules (July 28), their period of maturity evidently being considerably later than that of *S. carolinianum*, with which the species often grows. Fruit is regarded as very rare in this plant, a single good collection of it having been made in the mountains of Pennsylvania by Wolle and Rau in 1874, from which it was described by Austin.[20] In what genus the plant should be included is perhaps still open to question.

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[19] Vermehrung der Laubmoose, 247 f.; ef. 244 ff. 1899.

[20] Bot. Gaz., 1, 30. 1876.

Hypnum eugyrium Schimp. Rather frequent on stones in mountain brooks, Roan Mt., Tenn.; Swannanoa Mts.; Woodfin Falls.

Hypnum dilatatum Wils. Stone in brook, Woodfin Creek, upper course in Jones Knob.

Brachythecium rutabulum (L.) B. & S. Wet place in wood, upper altitude of Grandfather Mt. Grout[21] gives the southern limit as New Jersey and Pennsylvania.

Brachythecium rivulare B. & S. Stones in brooks, north of Linville Gap; Woodfin Falls. Grout[22] gives the southern limit as Virginia.

Eurhynchium rusciforme (Neck.) Milde. Stones in brooks, White Rock Mt., Tenn.; Woodfin Falls.

Cirriphyllum Boscii (Schwaegr.) Grout. Ground in woods, near roads, sterile, Swannanoa Mts. The species was not noted at higher altitudes.

Hylocomium triquetrum (L.) B. & S. Ground in woods, summit region, Jones Knob.

ITHACA, N. Y.

LITTLE JOURNEYS INTO MOSSLAND

V.—THE OLD GENUS HYPNUM

GEORGE B. KAISER

One enters the realm of hypnaceous mosses with somewhat the sensation of a timid wayfarer who, for the first time, ventures into an unexplored region, where every step is fraught with misgiving, along a confusing route which may at last lead him deep into an impenetrable jungle. At least, such were our own impressions when we first had to do with what we often characterized as "pesky Hypnums," breathing anathemas upon them and frequently relegating the specimens to the shelf for future study.

Beautiful though these pleurocarpous mosses may be, the genus Hypnum, as it used to be understood, with the one hundred and ninety-five North American species enumerated and described in the Lesquereux and James Manual, ever presented difficulties for beginners. We mentally placed it in rather the position of Carex, among the sedges, and complicated Compositae, among the higher flowering plants. Only recently has the genus been split into many sub-genera, leaving under the name of Hypnum only the single species, *Hypnum Schreberi*,—that charming yellowish-green moss which forms such rich and deep glistening cushions in many a moist corner in and at the edge of our woods.

But after all, according to the French proverb, it is only the first step which costs, and, when the threshold is once fairly crossed, where is the science that does not reveal itself quite simply to the student? One by one the species of these

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[21] Mem. Torr. Bot. Club, VI, 177. 1897.

[12] Op. cit., 182.